

REMARKS/ARGUMENTS

Claims 1-18 are currently pending in this application, with claims 1-14 rejected and claims 15-18 withdrawn. By this Amendment, claims 1 and 11 are amended. Claims 1-14 are presented for reconsideration and allowance.

35 U.S.C. §112

Claims 1-14 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. In particular, the Office Action asserts that the features “but sufficient to melt the surface itself” and “without melting the surface itself” in not supported by the specification. Claims 1 and 11 have been amended to remove the feature “without melting the surface itself.” Reconsideration and withdrawal of the rejection is respectfully requested in view of this amendment.

35 U.S.C. 103

Claims 1-4 and 9-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Albrecht patent in view of the Boquillon or Yeung patents. According to the Office Action, the Albrecht patent does not disclose cleaning the contaminated surface of the head suspension, but the reference discloses irradiating pulses of a laser beam on the lift tab, which inherently cleans the contaminated surface. According to the Office Action, the Albrecht patent discloses that it is desirable for each melted spot to be as large as possible, and that therefore a single pulse extends across the entire contaminated surface. Finally, according to the Office Action, it would have been obvious to incorporate the teachings of Boquillon or Yeung into the process of Albrecht to remove contaminants from the surface without melting the surface itself to avoid changing the surface physical characteristics.

The Albrecht patent is directed to a method of smoothing lift tab surfaces by rapidly melting the surface of the lift tab with a pulsed laser beam. The melting and refreezing process fills surface microcracks so that the melted surface refreezes with a smooth surface finish. (See Col. 4, lines 9-11 and 65-67). The melted spot of the lift tab surface has

different physical characteristics than the bulk of the lift tab due to the melting and refreezing process. (See Col. 4, lines 63-65). Also, the melted spot 28 may have a different crystal grain structure compared to the bulk of the lift tab. (See Col. 5, lines 1-2). Further, the melted spot has different contrast characteristics compared to the bulk of the lift tab when viewed with a scanning electron microscope. (See Col. 5, lines 2-5).

The Yeung patent describes a method for removing organic deposits from the surface of sand particles by selectively heating the organic deposits with a laser beam resulting in vaporization of the deposits without significant heating of the underlying sand particles. The Boquillon patent describes a method for cleaning pollutants from the surface of metal materials by applying a laser with a variable or tunable emission frequency to volatilize the material.

Amended claim 1 is directed to a method of cleaning a contaminated surface on a head suspension and recites “applying one or more pulses of the laser energy sufficient to laser clean the contaminated surface by vaporizing surface irregularities on the contaminated surface.” Support for the amendment is found throughout the specification. See, for example, the discussion at page 5, line 25.

The Albrecht patent fails to teach or suggest a method of cleaning a contaminated surface as recited in claim 1. Specifically, the Albrecht patent fails to teach or suggest the step of applying one or more pulses of laser energy to laser clean the contaminated surface by vaporizing surface irregularities on the contaminated surface. The claimed method avoids the material modifications described above with respect to the Albrecht patent process by applying laser energy to vaporize remnants. Thus, changes in the head suspension’s physical characteristics, crystal grain structure and contrast characteristics as described by the Albrecht patent are avoided.

There is no motivation to combine the Albrecht patent with either of the Yeung or Boquillon patents because doing so would render the method of the Albrecht patent inoperable. The resulting process would fail to smooth the surface by melting and refreezing the surface. Furthermore, surface microcracks would remain unfilled, contributing to the surface irregularities. Because the Albrecht patent fails to teach or suggest each element of

claim 1, and is not properly combinable with either of the Yeung or Boquillon patents, the Applicant respectfully requests reconsideration and withdrawal of the rejection. Claims 2-4 and 9-10 directly or indirectly depend from claim 1 and are allowable for at least the same reasons described with respect to claim 1. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 5-8 and 11-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Albrecht patent in view of the Boquillon or Yeung patents as applied to claims 1-4 and 9-10, and further in view of the Hosoya patent.

Claims 5-8 depend from claim 1 and are allowable for at least the reasons previously described with respect to claim 1. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 11 has been amended to recite “determining a fluence such that a single pulse cleans the contaminated surface by vaporizing surface irregularities on the contaminated surface.” Support for the amendment is found throughout the specification, including at least at page 5, line 25. In view of this amendment, and for reasons similar to those discussed above in connection with claim 1, claim 11 is allowable for at least the reasons described with respect to claim 1 above. Reconsideration and withdrawal of the rejection is respectfully requested. Claims 12-14 depend from claim 11 and are allowable for at least the same reason. Reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

All of the claims remaining in this application should now be seen to be in condition for allowance. The prompt issuance of a notice to that effect is respectfully solicited. If there are any remaining questions, the Examiner is requested to contact the undersigned at the number listed below.

No fee is believed to be necessary for the entry of this paper. Should any fee be required for entry of this paper, the Commissioner is authorized to charge the Faegre & Benson Deposit Account No. 06-0029 and in such event, is requested to notify us of the same.

Respectfully Submitted,

HRYHORY T. KOBA et al.,

By: 

Dana J. Zelazny, #58,406
FAEGRE & BENSON LLP
2200 Wells Fargo Center
90 South Seventh Street
Minneapolis, MN 55402-3901
612/766-8442

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